AMENDMENTS

In the claims:

Please amend the claims as follows:

1. (currently amended) A method of tuning a transducer circuit comprising the steps of:

~~identifying~~ providing the transducer circuit having an ultrasonic transducer that includes at least one reactance characteristic and an operating frequency range, the ultrasonic transducer comprising a capacitive microfabricated electrostatic transducer, and at least one signal path that is electrically coupled to the ultrasonic transducer, the at least one signal path including a receive signal path, the receive signal path receiving an electric receive signal generated with transduction from ultrasound energy by the ultrasonic transducer and outputting the electric receive signal to an imaging system, wherein the at least one signal path further includes a transmit signal path; and

inserting a balancing circuit into the at least one signal path to substantially balance the at least one reactance characteristic of the ultrasonic transducer over the operating frequency range, the balancing circuit comprising an active circuit;

wherein the balancing circuit is inserted into the receive signal path.

2. (cancelled)

3. (currently amended) The method of claim [[2]] 1, wherein the at least one reactance characteristic includes a capacitance of the ultrasonic transducer.

4. (cancelled)

5. (currently amended) The method of claim [[4]] 1, wherein the balancing circuit includes a negative capacitor circuit to substantially balance the capacitance of the ultrasonic transducer.

6. (original) The method of claim 5, wherein the negative capacitor includes an op-amp and a plurality of feedback resistors.

7. (original) The method of claim 5, wherein the negative capacitor includes a pair of transistors.

8. (original) The method of claim 5, wherein the balancing circuit further includes a plurality of switches to isolate the balancing circuit from the ultrasonic transducer during a transmission.

9. (original) The method of claim 8, wherein the plurality of switches include a plurality of transistors.

10. (original) The method of claim 8, wherein the at least one reactance characteristic further includes a negative reactance of the ultrasonic transducer.

11. (original) The method of claim 10, wherein the balancing circuit further includes an inductance for substantially balancing the negative reactance of the ultrasonic transducer over the frequency range, the inductance being inserted into the transmit signal path and isolated from the receive signal path during the transmission using the plurality of switches.

12. (currently amended) The method of claim [[2]] 1, wherein:

the transmit signal path of the transducer circuit is electrically coupled to the ultrasonic transducer using a first electrode of the ultrasonic transducer; and

the receive signal path of the transducer circuit is electrically coupled to the ultrasonic transducer using a second electrode of the ultrasonic transducer.

13. (original) The method of claim 12, wherein the first electrode is a high voltage signal path and the second electrode is a low voltage signal path.

14. (original) The method of claim 13, wherein the balancing circuit includes a negative capacitor circuit that is inserted into the low voltage signal path for substantially balancing the at least one reactance characteristic.

15. (original) The method of claim 14, wherein the balancing circuit further includes an inductance that is inserted into the high voltage signal path for further substantially balancing the at least one reactance characteristic.

16. (currently amended) A tuned transducer circuit comprising:

an electro-acoustic transducer circuit having an ultrasonic transducer that includes at least one reactance characteristic and an operating frequency range, and at least one signal path that is electrically coupled to the ultrasonic transducer, the at least one signal path including a receive signal path for reception of electrical signals representing ultrasound echoes; and

a balancing circuit that is inserted into the at least one signal path to substantially balance the at least one reactance characteristic of the ultrasonic transducer over the operating frequency range, wherein the balancing circuit is inserted into the receive signal path.

17. (currently amended) The circuit of claim 16, wherein the at least one signal path further includes ~~one or more of~~ a transmit signal path ~~and a receive signal path~~

18. (original) The circuit of claim 17, wherein the at least one reactance characteristic includes a capacitance of the ultrasonic transducer.

19. (cancelled)

20. (currently amended) The circuit of claim [[19]] 16, wherein the balancing circuit includes a negative capacitor circuit to substantially balance the capacitance of the ultrasonic transducer.

21. (original) The circuit of claim 20, wherein the negative capacitor includes an op-amp and a plurality of feedback resistors.

22. (original) The circuit of claim 20, wherein the negative capacitor includes a pair of transistors.

23. (original) The circuit of claim 20, wherein the balancing circuit further includes a plurality of switches to isolate the balancing circuit from the ultrasonic transducer during a transmission.

24. (original) The circuit of claim 23, wherein the plurality of switches include a plurality of transistors.

25. (original) The circuit of claim 23, wherein the at least one reactance characteristic further includes a negative reactance of the ultrasonic transducer.

26. (original) The circuit of claim 21, wherein the balancing circuit further includes an inductance for substantially balancing the negative reactance of the ultrasonic transducer over the operating frequency range, the inductance being inserted into the transmit signal path and isolated from the receive signal path during the transmission using the plurality of switches.

27. (original) The method of claim 17, wherein:

the transmit signal path of the transducer circuit is electrically coupled to the ultrasonic transducer using a first electrode of the ultrasonic transducer; and

the receive signal path of the transducer circuit is electrically coupled to the ultrasonic transducer using a second electrode of the ultrasonic transducer.

28. (original) The method of claim 27, wherein the first electrode is a high voltage signal path and the second electrode is a low voltage signal path.

29. (original) The method of claim 28, wherein the balancing circuit includes a negative capacitor circuit that is inserted into the low voltage signal path for substantially balancing the at least one reactance characteristic.

30. (original) The method of claim 29, wherein the balancing circuit further includes an inductance that is inserted into the high voltage signal path for further substantially balancing the at least one reactance characteristic.

31. (currently amended) A method of tuning a transducer circuit comprising the steps of:

~~identifying~~ providing the transducer circuit having an ultrasonic transducer that includes a capacitance and an operating frequency range, and a receive signal path that is electrically coupled to the ultrasonic transducer for reception of electrical signals representing ultrasound echoes;

inserting a negative capacitor into the receive signal path to substantially balance the capacitance of the ultrasonic transducer over the operating frequency range; and

isolating the negative capacitor from the ultrasonic transducer during a transmission of the transducer circuit using a plurality of switches.

32. (original) The method of claim 31, wherein the ultrasonic transducer further includes a negative reactance and a transmit signal path, and the balancing circuit further includes an inductance for substantially balancing the negative reactance of the ultrasonic transducer over the operating frequency range, the inductance being inserted into the transmit signal path and isolated from the receive signal path during the transmission using the plurality of switches.

33. (currently amended) A tuned transducer circuit comprising:

a transducer circuit having an ultrasonic transducer that includes a capacitance and an operating frequency range, the ultrasonic transducer comprising a capacitive microfabricated electrostatic transducer, and a receive signal path that is electrically coupled to the ultrasonic transducer, the receive signal path receiving an electric receive signal generated with transduction from ultrasound energy by the ultrasonic transducer and outputting the electric receive signal to an imaging system;

a negative capacitor inserted into the receive signal path to substantially balance the capacitance of the ultrasonic transducer over the operating frequency range; and a plurality of switches that isolate the negative capacitor from the ultrasonic transducer during a transmission of the transducer circuit.

34. (original) The circuit of claim 33, wherein the ultrasonic transducer further includes a negative reactance and a transmit signal path, and the balancing circuit further includes an

inductance for substantially balancing the negative reactance of the ultrasonic transducer over the operating frequency range, the inductance being inserted into the transmit signal path and isolated from the receive signal path during the transmission using the plurality of switches.

35. (currently amended) A method of tuning a transducer circuit comprising the steps of:

~~identifying~~ providing the transducer circuit having a plurality of ultrasonic transducers, each ultrasonic transducer including a capacitance and an operating frequency range, the ultrasonic transducers comprising capacitive microfabricated electrostatic transducers, and one or more receive signal paths that are electrically coupled to the plurality of ultrasonic transducers, the receive signal paths each receiving an electric receive signal generated with transduction from ultrasound energy by respective ultrasonic transducers and outputting the electric receive signals to an imaging system.; [[and]]

inserting a balancing circuit into the one or more receive signal paths to substantially balance the capacitance of each ultrasonic transducer over the operating frequency range; and

isolating the balancing circuit from the plurality of ultrasonic transducers during a transmission of the transducer circuit using a plurality of switches.

36. (original) The method of claim 35, wherein the balancing circuit is a negative capacitor.

37. (cancelled)

38. (currently amended) The method of claim [[37]] 35, wherein each ultrasonic transducer further includes a negative reactance and one or more transmit signal paths, and the balancing circuit further includes an inductance for substantially balancing the negative reactance of the ultrasonic transducer over the operating frequency range, the inductance being inserted into the one or more transmit signal paths and isolated from the one or more receive signal paths during the transmission using the plurality of switches.

39. (currently amended) A tuned transducer circuit comprising:

a transducer circuit having a plurality of ultrasonic transducers, each ultrasonic transducer including a capacitance and an operating frequency range, the ultrasonic transducers comprising

capacitive microfabricated electrostatic transducers, and one or more receive signal paths that are electrically coupled to the plurality of ultrasonic transducers, the receive signal path receiving an electric receive signal generated with transduction from ultrasound energy by the ultrasonic transducer and outputting the electric receive signal to an imaging system; [[and]]

a balancing circuit inserted into the one or more receive signal paths to substantially balance the capacitance of each ultrasonic transducer over the operating frequency range, the balancing circuit comprising an active circuit; and

a plurality of switches that isolate the balancing circuit from the plurality of ultrasonic transducers during a transmission of the transducer circuit.

40. (original) The circuit of claim 39, wherein the balancing circuit is a negative capacitor.

41. (cancelled)

42. (currently amended) The circuit of claim [[41]] 39, wherein each ultrasonic transducer further includes a negative reactance and one or more transmit signal paths, and the balancing circuit further includes an inductance for substantially balancing the negative reactance of the ultrasonic transducer over the operating frequency range, the inductance being inserted into the one or more transmit signal paths and isolated from the one or more receive signal paths during the transmission using the plurality of switches.